

BLACK ROOT ROT OF JAPANESE HOLLY

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Japanese holly (*Ilex crenata* Thunb.) is an important evergreen shrub grown in nurseries in Florida. Many of the shrubs are grown for shipment to northern states. Recently a disease new to Florida, black root rot, was detected in containers of Japanese holly (3). This disease, incited by the fungus *Thielaviopsis basicola* (Berk. & Br.) Ferraris, was first reported in 1976 on Japanese holly in Virginia (4).

SYMPTOMS. Black lesions commonly occur on the tips of infected roots but may occur elsewhere on the roots (fig. 1). The foliage of infected container-grown Japanese holly exhibits chlorosis, and the roots are stunted (fig. 2). Stems and leaves have not been observed to be colonized by *T. basicola*. Roots of Japanese holly colonized by *T. basicola* bear conidia and chlamydospores on the surface and in the root tissues. Other fungi such as *Rhizoctonia solani* Kuhn and *Pythium* spp. may be associated with roots colonized by *T. basicola*. Although black root rot has not been detected in landscape plantings in Florida, *T. basicola* has been cultured from the roots of declining landscape holly in Virginia (1).



Fig. 1. Black lesions caused by *Thielaviopsis basicola* on root tip of *Ilex crenata*.

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Fig. 2. *Thielaviopsis basicola* on *Ilex crenata*. Diseased and discolored roots on plant on left, healthy plant in center, and severe loss of roots caused by numerous root infections on plant on right.

HOST RANGE. Black root rot has been listed on numerous herbaceous ornamentals by Pirone (6). *Thielaviopsis basicola* has caused the failure of scion-rootstock grafts in several woody ornamentals (2). Six cultivars of Japanese holly are reported to be highly susceptible while *I. vomitoria* Ait. and *I. opaca* Ait. are moderately resistant and *I. aquifolium* L. and *I. cornuta* Lindl. are highly resistant (5).

When various ornamental and non-ornamental plants were inoculated in the greenhouse with *T. basicola* from Japanese holly, it was found that pansy (*Viola tricolor* L.) and English boxwood (*Buxus sempervirens* var. *suffruticosa* L.) were susceptible (7). Vegetables susceptible to infection included tomato (*Lycopersicon esculentum* Mill.), eggplant (*Solanum melongena* L.), bean (*Phaseolus vulgaris* L.), and cowpea (*Vigna sinensis* (Torner) Savi.). Field crops found to be susceptible include soybean (*Glycine max* L.), peanut (*Arachis hypogaea* L.), alfalfa (*Medicago falcata* L.), and tobacco (*Nicotiana tabacum* L.).

CONTROL. Only cuttings from healthy plants should be rooted on raised benches so as to avoid pathogen contamination from the soil. Rooting and growing media that contain soil, flats or containers, and benches should be free of the fungus. Pasteurization with aerated steam or fumigation with a chemical such as methyl bromide will eradicate conidia and chlamydospores in the growing medium.

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